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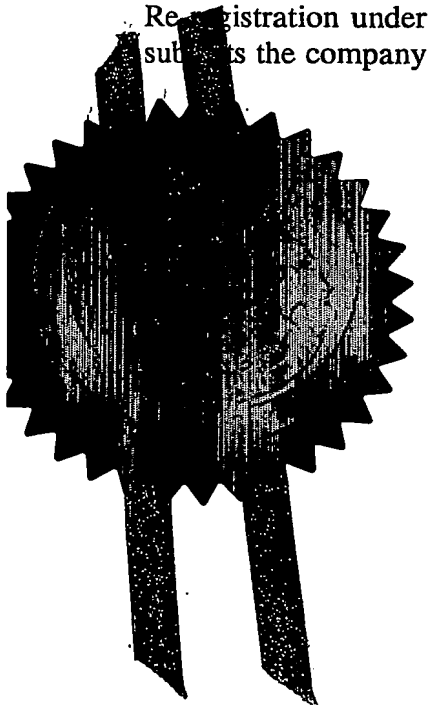

Signed [signature]

Dated 3 November 2003

Patents Form 1/77

Patents Act 1977
(Rule )




1/77

# Request for grant of a patent

*(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)*



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Cardiff Road
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1. Your reference

539

2. Patent application number
*(The Patent Office will fill in this part)*

0222848.4

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*

SANDPIPER ASSOCIATES
68 HIGH STREET
OTFORD, SEVENOAKS
KENT TN14 5PH
GB

Patents ADP number *(if you know it)* 8308751001

If the applicant is a corporate body, give the country/state of its incorporation

4. Title of the invention

ROUTER ATTACHMENT

5. Name of your agent *(if you have one)*

"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*

COHEN, ALAN NICOL
2 GROVE PLACE
TATSFIELD
Nr. WESTERHAM
KENT
TN16 2BB

Patents ADP number *(if you know it)* 6963557001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

| Country | Priority application number *(if you know it)* | Date of filing *(day / month / year)* |
|---|---|---|

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

| Number of earlier application | Date of filing *(day / month / year)* |
|---|---|

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:*

*a) any applicant named in part 3 is not an inventor, or*
*b) there is an inventor who is not named as an applicant, or*
*c) any named applicant is a corporate body.*
*See note (d))*

YES

**Patents Form 1/77**

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

| | |
|---|---|
| Continuation sheets of this form | — |
| Description | 6 |
| Claim(s) | 2 |
| Abstract | 1 |
| Drawing(s) | 3 + 3 |

10. If you are also filing any of the following, state how many against each item.

| | |
|---|---|
| Priority documents | |
| Translations of priority documents | |
| Statement of inventorship and right to grant of a patent *(Patents Form 7/77)* | |
| Request for preliminary examination and search *(Patents Form 9/77)* | |
| Request for substantive examination *(Patents Form 10/77)* | |
| Any other documents *(please specify)* | |

11. I/We request the grant of a patent on the basis of this application.

Signature [signature] Date 2 - 10 . 02

12. Name and daytime telephone number of person to contact in the United Kingdom A. N. Cohen 01959 577172

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# Router Attachment

The present invention relates to adjustable attachments which can be used with routers making them safer and more effective.

A router is a tool which is used for cutting precise edges, grooves or shapes in a workpiece.

In a typical straight or curve line cutting guide, the workpiece is clamped securely to the guide and the required cut is made. Several U.S. patents have issued which offer guides for routers. Most of these prior art devices lack the necessary flexibility, adaptability, and variety of applications. US Patents 4966507, 4434824, 4281604, 4630657, 4215731 describes such guides.

In a typical router there is a base plate attached to the router columns so that the router is raised and lowered on the columns and the router bit passes through a hole in the base plate into the work piece.

In working on large sections in which the router bit cuts out a over a larger area there is used a board with a hole in it onto which the base plate is placed and over which it moves, with the work piece located beneath the board so that the router bit passes through the base plate, through the hole in the board and cuts over a larger area. However, normally the hole in the board is larger than the base plate and the base plate can be unsupported for some of the time when the router bit is near the edge of the hole and also the presence of the sheet means that the depth of the cut which can be achieved is greatly reduced and, in addition it can be difficult to see the router bit.

We have now devised an attachment for use with routers which reduces or overcomes these problems.

According to the invention there is provided an attachment for a router which comprises (i) a first component which consists of a plate having a aperture in it which plate is attachable to the router and in which the width of the aperture is greater than the distance between the router columns and (ii) a second component which comprises an insert which removably fits within the aperture in the first component and which has router column attachment means adapted to be attached to the ends of the router columns and which insert has a hole through which the router bit can pass.

In use the second component (the insert) is attached to the router columns and the first component (the plate) fitted around it and attached to the router, the router can then be operated as a conventional router. Preferably difference in level between the lower surfaces of the first and second components which are in contact with the workpiece is minimised or the surfaces are level.

The insert can be made of any material such wood, metal or plastics material, preferably it has an inner section and an outer section with the inner section fitting within the aperture in the plate to form a tight fit and the outer section being of greater thickness and the outside part of it part of it fitting over the upper surface of the plate.

Preferably there is a recess within the insert at the bottom of which recess there is a hole through which the router bit can pass, preferably there is a router bit guide bush fitted within the recess.

The distance apart and size etc. of the router column attachment means of the insert can be adapted to different routers and there can be a range of adjustment means so that the insert can be adapted for different routers. These attachment means can be in the form of bolts etc which can be fixed to the ends of the columns.

The plate can be made of any material, e.g. metal wood, plastics material etc. and can be a plate or sheet, board etc. of any size so that the router can be used to work on any size of work piece. In particular it facilitates the working at or near the edge of work pieces without the base plate losing support.

In one embodiment of the invention the first component can be a sheet of board or other material which can be supported on supports or on a workbench such as a "Workmate", with the router positioned beneath the board i.e. the router operates upwards with the workpiece on the sheet or board above the router. This enables a router work bench to be assembled on site as what is required, is a piece of board and two supports, an aperture is then cut in the board into which aperture the insert, attached to the router columns, fits. The board is then fixed to the router and turned upside down and supported on the supports so the router operates upwardly with the work piece placed on top of the board.

The terms upper and lower apply to the position when the base plate is substantially parallel to the ground and the router bit faces downwards.

The router attachment is especially useful used in conjunction with the device of GB Patent Application 0201424.9

In use the cutter can cause dust and other particulate debris to be formed which are a nuisance and a potential hazard. In order to remove this dust and other debris a vacuum or suction system is usually employed, however because of the looseness of fit of the router cutter and the template only limited suction is likely to be achieved.

In order to facilitate removal of this debris there can be an upwardly curving ramp leading away from the hole in the insert through which the router bits operates, in use, as the router bit rotates, the debris is thrown out along and up the ramp. To remove the debris from the ramp preferably there is an outlet in the insert through which the debris will tend to be thrown by centrifugal force, preferably this outlet is positioned substantially tangentially to direction of rotation of the router bit. There can be a suction means in the outlet pr connected to the outlet to assist in this removal.

The invention also provides a filter construction for use with the attachment of the

present invention.

To construct the filter a ball of deformable material such as an expanded plastic e.g. expanded polystyrene, has a ring formed around it and spaced apart from it by means of breakable spokes. A fibre or wire is wound around the ring and the ball crushed in conjunction with a twisting motion, which breaks the spokes to achieve a flat filter element, a sealing ring can then be placed around the edge to form a flat sealing element and the ball removed. The dimensions are chosen so that it can fit around the router blade within the recess in the insert.

An embodiment of the invention is illustrated in the drawings in which :-

Fig. 1 shows a plan view of the attachment
Fig. 2 shows a side view
Fig. 3 shows the use with "wings"
Fig. 4 shows a partial plan view another embodiment
Fig. 5 shows a side view of the use with a workbench
Fig. 6 shows a plan view of the attachment showing the ramp
Fig. 7 shows a side view of fig. 6
Fig. 8 shows an alternative fixing
Fig. 9 shows the support for forming the filter element
Fig. 10 shows a side view of fig. 9 and
Fig. 11 shows a plan view of the formed filter

Referring to fig. 1 a first component (1) consists of a plate with an aperture (2) in it into which second component insert (3) fits the insert has an inner section (3a) and an outer section (3b). The second component, the insert (3), in use, is attached to router columns by attachment at locations (4). The plate (1) can be attached to the router by fixing means (5). The attachment can be used with a moveable guide (6) which can slide on long supports (7) clear of the router base. There is a guide bush recess in (3) shown at (8).

Referring to fig. 2 the router (20) has a router bit (22) and can slide up and down on columns (21). In use the component (3) is attached to the router columns (21) at locations (4) (fig. 1) and fits into the aperture (2) in component (1), the component (1) is attached to the router at (5). The router and attachment is placed on a workpiece so that, as the router (20) moves up and down on columns (21), the router bit (22) engages the workpiece. If a different component (1) e.g. of different size etc. is required then the component is detached from the router and replaced.

Referring to fig. 3 the workpiece (10) is supported on wings (11) when the edge of the workpiece is being worked on, as can be seen the wings (11) support the workpiece (10).

Referring to fig. 4 this shows the component (1) of fig. 1 replaced by a large sheet (25) where there is large void to span.

Referring to fig. 5 a large board (32) is attached to the router (20) and the insert (3) fitted within an aperture within the board and attached to router columns (21). The board (32) is supported on supports so that the router is beneath the board and operates upwards. A workpiece (31) is placed on (3) and (32) as shown and located by guide fence (30). The router bit (22) can then operate on the workpiece (31) as it is moved. The equipment can be assembled on site as, all that is required is that an aperture is cut in the board into which the component (3) fits and the board attached to the router (21). Thus a work bench is easily assembled.

Referring to figs. 6 and 7 in the plate (3) there are alternative fixing points (4a) so that the plate can be fixed to different routers. Inside the depression (8) in the insert (3) is an upwardly curving ramp (40) connected to an exit (43) so that, as a router bit operating through hole (9) in guide bush (41), rotates debris formed is spun up the ramp by centrifugal force and is ejected through (43) where it can be removed e.g. by suction etc. There is a nylon brush sealing disc (43) preventing debris from flying up out of (8). The range of points for attaching to the router columns (21) is shown at (42) in fig. 7.

Referring to fig. 8 this shows fixing points for the guide bush (41) at (44) and column anchor points (45) for attaching the insert (3) to the columns.

Referring to figs. 9, 10, 11 a support shown in plan view in fig. 9 consists of an outer ring (50) an inner ring (52) connected by spokes (51) there is a compressible polystyrene ball (53) in the middle. Fibres (54) are wound over (50) and (53). To form the filter the ball is crushed with rotation to break spokes (51), the ball is removed and the filter structure of fig. 11 formed.

Claims

1. An attachment for a router which comprises (i) a first component which consists of a plate having a aperture in it which plate is attachable to the router and in which the width of the aperture is greater than the distance between the router columns and (ii) a second component which comprises an insert which removably fits within the aperture in the first component and which has router column attachment means adapted to be attached to the ends of the router columns and which insert has a hole through which the router bit can pass.

2. An attachment as claimed in claim 1 in which the insert has an inner section and an outer section with the inner section fitting within the aperture in the plate to form a tight fit and the outer section being of greater thickness and the outside section of the insert fitting over the upper surface of the plate.

3. An attachment as claimed in claim 1 or 2 in which there is a recess within the insert at the bottom of which recess there is a hole through which the router bit can pass preferably there is guide bush fitted within the recess.

4. An attachment as claimed in any one of the preceding claims in which the distance apart and size etc. of the router column attachment means of the insert can be adapted to different routers and there can be a range of adjustment means so that the insert can be adapted for different routers.

5. An attachment as claimed in any one of the preceding claims in which the first component is a plate, sheet or board of any size.

6. An attachment as claimed in any one of the preceding claims in which the difference in level between the lower surfaces of the first and second components which come into contact with the workpiece is minimised or the surfaces are level.

7. An attachment as claimed in any one of the preceding claims in which the first component is a sheet of board or other material which can be supported on supports

or on a workbench with the router positioned beneath the board so the router operates upwards with the workpiece on the sheet or board above the router.

8. An attachment as claimed in any one of the preceding claims in which in order to facilitate removal of debris formed by use of the router, there is an upwardly curving ramp leading away from the hole in the insert through which the router bits operates, and an outlet through which the debris will tend to be thrown by centrifugal force.

9. An attachment as claimed in claim 9 in which the outlet is positioned substantially tangentially to direction of rotation of the router bit.

10. A router having attached thereto an attachment as claimed in any one of the preceding claims.

11. A method of forming a filter element in which a ball of deformable material has a ring formed around it and spaced apart from it by means of breakable spokes, a fibre or wire is wound around the ring and the ball and the ball is then crushed in conjunction with a twisting motion to break the spokes to achieve a flat filter element, and the ball removed.

Abstract

An attachment for a router is in two parts, a plate with an aperture in it which is attached to the router outside the router columns and an insert which fits tightly within the aperture and which is attached to the columns.

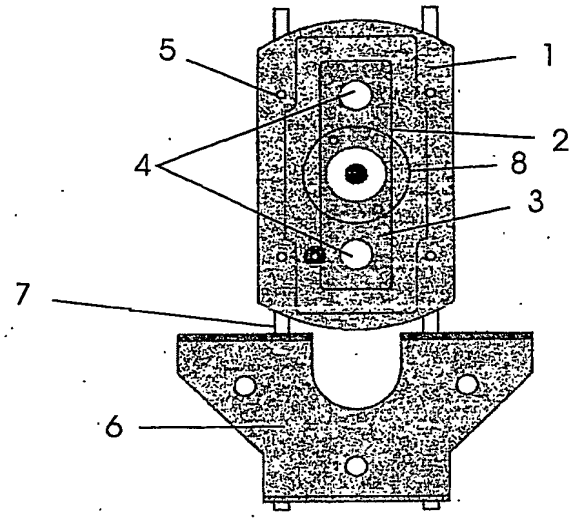



Fig. 1

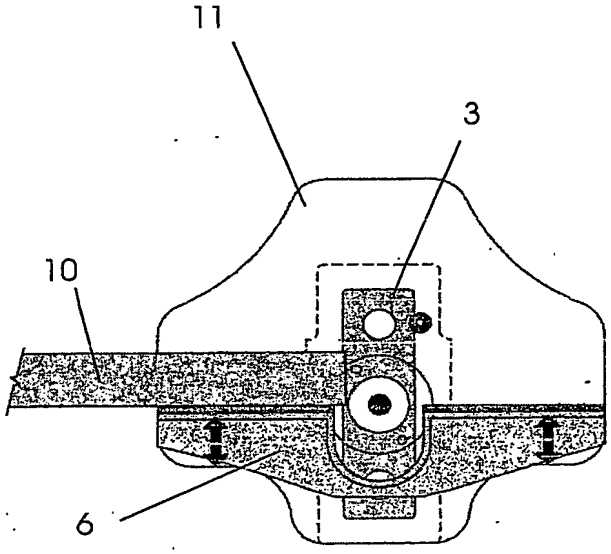
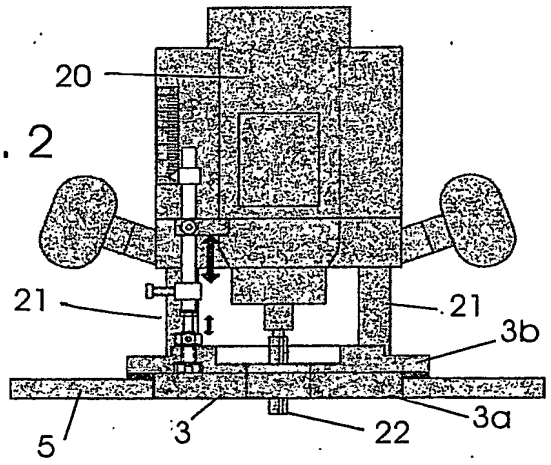



Fig. 3

Fig. 2



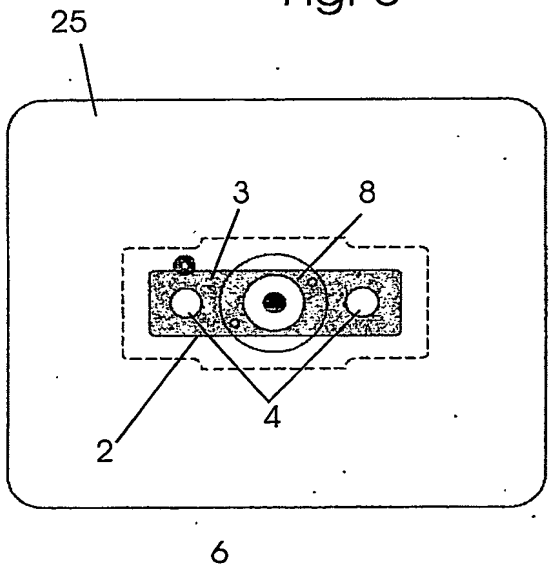




Fig. 4

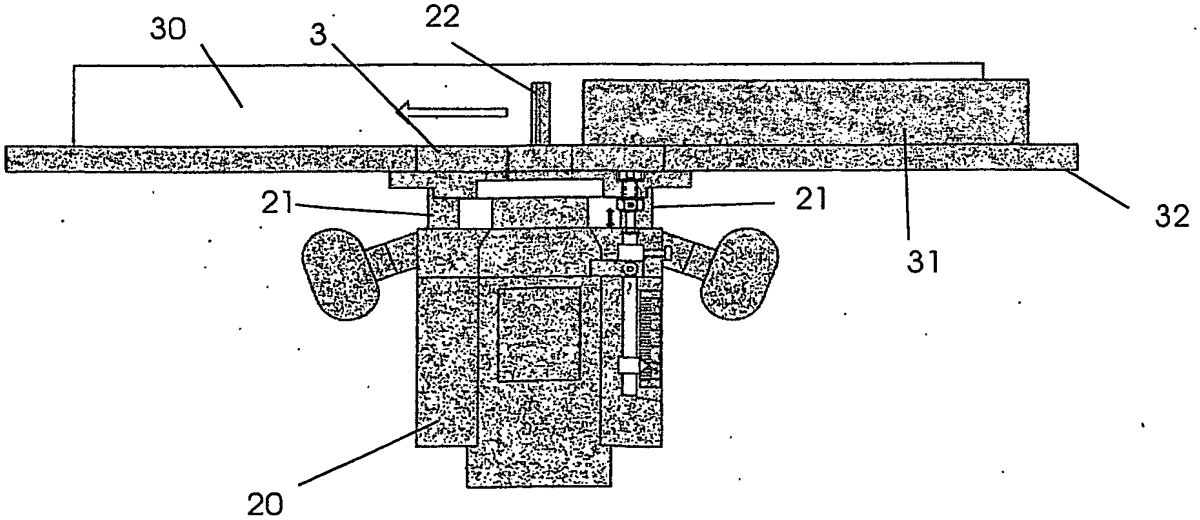



Fig. 5

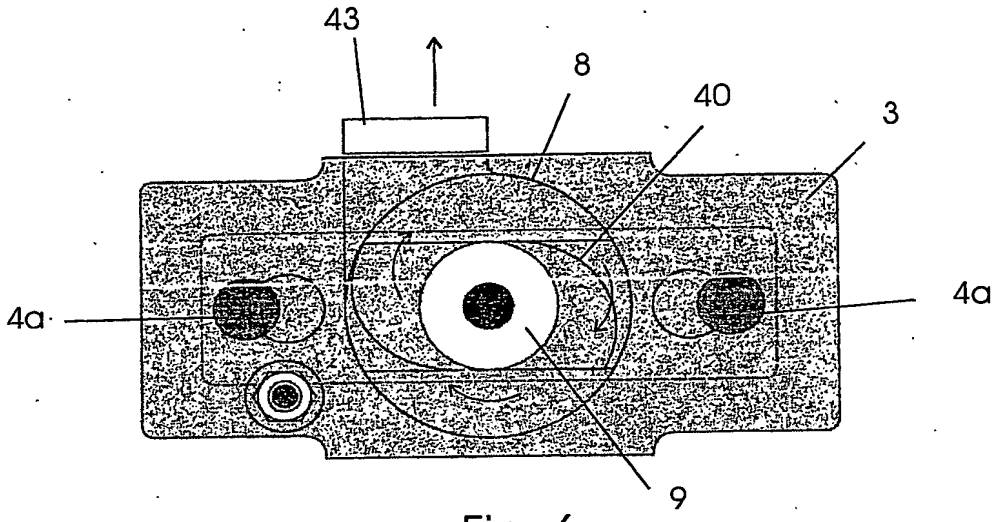



Fig. 6

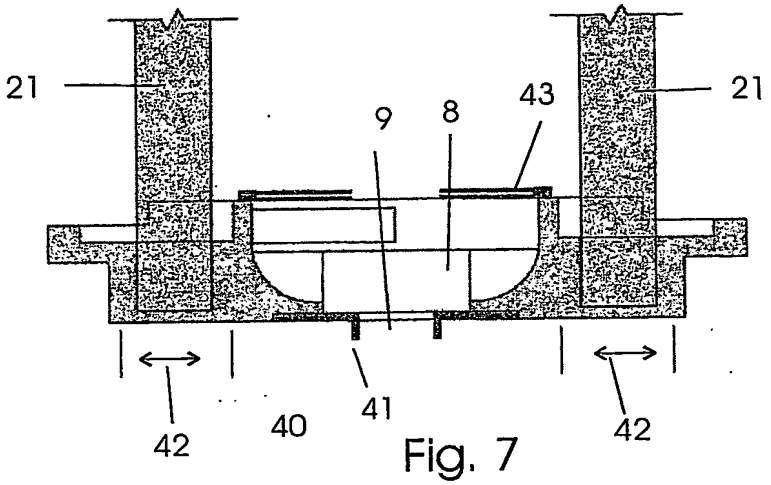



Fig. 7

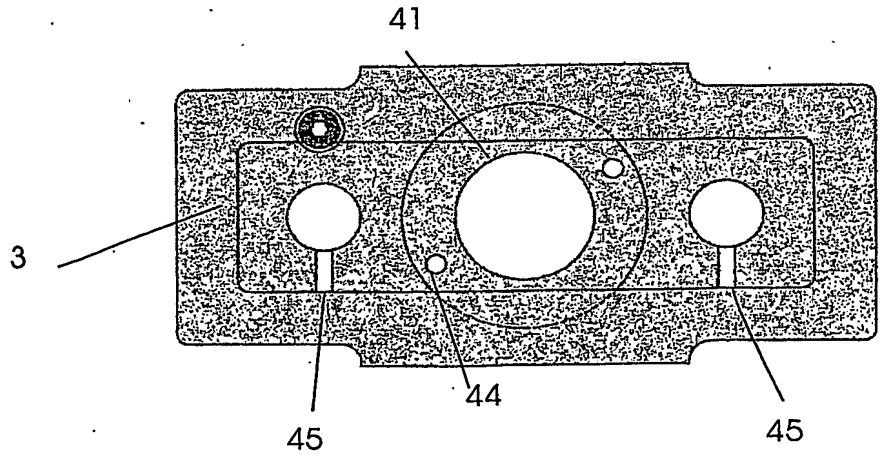



Fig. 8

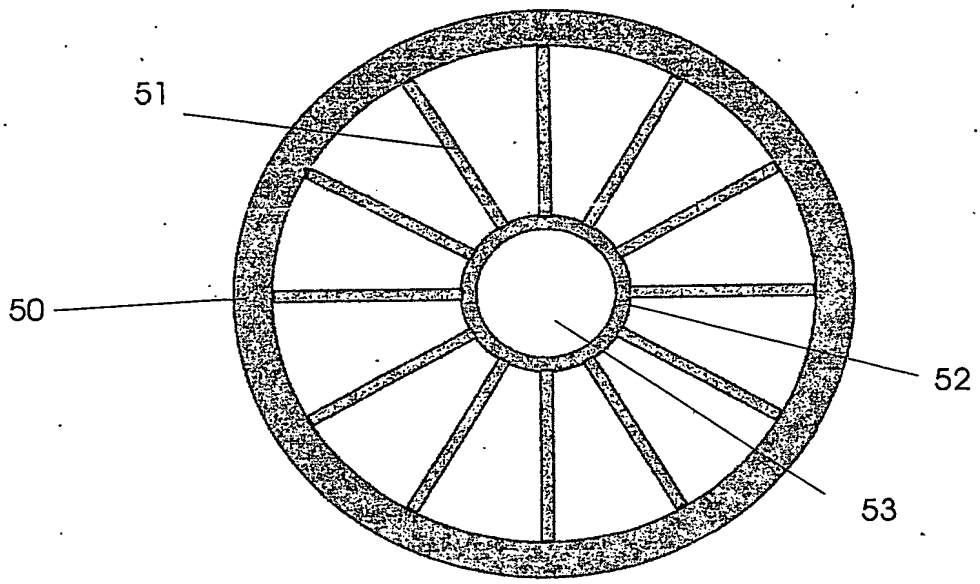



Fig. 9

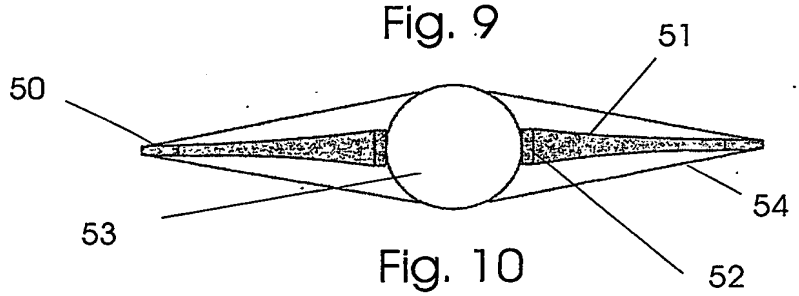



Fig. 10

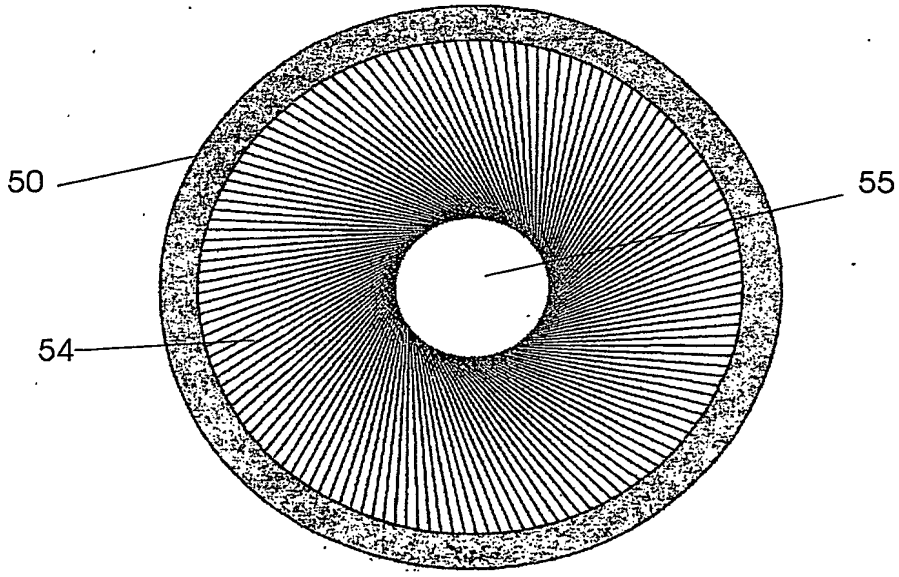



Fig. 11